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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,395	11/15/2001	George Paul Eaves	TI-32227	5883

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EXAMINER

RIVERO, MINERVA

ART UNIT	PAPER NUMBER
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2655

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/004,395	EAVES ET AL.	
	Examiner	Art Unit	
	Minerva Rivero	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/15/01</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 7-13 and 16-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Marley (US Patent 4,181,813).

3. Regarding claims 11, 23 and 25, Marley discloses a method and system for distinguishing between spoken words comprising

an amplifier that amplifies an electrical signal corresponding to a spoken word and provides a speech waveform having one or more characteristics at distinguishable levels (*amplifier*, Col. 4, Lines 22-25; *electrically characterizing speech features*, Col. 3, Lines 50-56);

a comparator that converts the speech waveform into a digital pulse waveform based on comparing the speech waveform to a threshold level (*comparator*, Col. 9, Lines 2-17; Fig. 5, element 108) ;

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a threshold level shifter circuit that provides a voltage corresponding to the threshold level, the threshold level shifter circuit operative to provide two or more different threshold levels based on an input state of the threshold level shifter circuit (level detect circuitry and magnitude control circuit, Col. 9, Lines 8-36; Fig. 5, elements 116 and 118) and

matching the determined one or more characteristics associated with the digital pulse waveform to one or more stored characteristics associated with a set of selectable words to determine the spoken word (*using the digitized waveform to match speech sounds to phonemes*, Col. 6, Lines 3-8; Col. 3, Lines 50-56).

4. Regarding claims 1, 9-10, 16 and 24, Marley discloses a speech recognition system comprising

a conversion circuit operative to convert a speech waveform into a digital pulse waveform (*delta modulator*, Col. 7, Lines 21-24; Fig. 3, element 34); and

an analysis system that analyzes one or more characteristics of the digital pulse waveform to determine a spoken word corresponding to the speech waveform from a set of selectable words, the analysis system operative to adjust a threshold level corresponding to converting the speech waveform into a digital pulse waveform to analyze portions of the speech waveform at different amplitude levels (*using the digitized waveform to match speech sounds to phonemes*, Col. 6, Lines 3-8; *level detect circuitry for adapting to the amplitude of the speech signal*, Col. 9, Lines 34-38).

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5. Regarding claims 2 and 17, Marley discloses the conversion circuit comprises a comparator that receives the speech waveform and compares the speech waveform to the threshold level provided by a threshold level shifter circuit (*comparator, magnitude control circuit and level detect circuitry*; Col. 9, Lines 2-31).

6. Regarding claims 3, 12 and 26, Marley discloses the threshold level shifter circuit operative to change the threshold level based on a state of a single digital output (*level detect circuit causes the magnitude control circuit to compensate for variations in amplitude of the speech signal on the output conductor*, Col. 9, Lines 13-31).

7. Regarding claims 4 and 13, Marley discloses the threshold level shifter circuit operative to modify a threshold level of the comparator at one or more threshold levels (*magnitude control circuit modifies the magnitude of the ramp signal that is the output of the integrator circuit (the signal used by the comparator as reference)*, Col. 9, Lines 22-31).

8. Regarding claim 7, Marley disclose a microphone that converts a spoken word into an electrical signal and an amplifier that amplifies the electrical signal into a speech waveform having one or more characteristics at distinguishable levels, the amplifier coupled to the comparator (*microphone and amplifier*, Col. 6, Lines 30-33; Fig. 3, elements 24 and 32).

9. Regarding claims 8 and 27, Marley discloses the one or more characteristics being at least one of speech waveform modulation amplitude, speech waveform modulation frequency and speech waveform duration (*delta modulation*, Col. 4, Lines 6-18).

10. Regarding claim 18, Marley discloses the different portions comprising voiced portions and unvoiced portions (*"voice" and voiceless sounds*, Col. 6, Lines 59-67; *determining whether there is speech, silence or "hiss", based on amplitude and frequency information*, Col. 15, Lines 29-38). The Examiner has allowed applicant to be his own lexicographer by accepting his unconventional definition of "voiced" and "unvoiced", as found in the discussion of Fig. 3 on Page 5, Lines 15-16 and 23-29. According to the art standard usage both portions 42 and 46 would have been considered "voiced".

11. Regarding claim 28, Marley discloses the determining one or more characteristics associated with the digital pulse waveform comprising counting the number of pulses of the digital pulse waveform to determine the frequency of at least a portion of the speech waveform (*determining if there is a high frequency component in the present sound*, Col. 15, Lines 41-44).

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12. Regarding claim 29, Marley discloses the determining one or more characteristics associated with the digital pulse waveform comprising determining the time between pulses of the digital pulse waveform to determine the frequency of at least a portion of the speech waveform (Col. 12, Lines 9-11).

13. Regarding claims 19 and 31, Marley discloses determining between a word having a voiced portion and an unvoiced portion and a word having a voiced portion only (*transitional sounds which include "voice" and voiceless components*, Col. 6, Line 59 – Col. 7, Line 2, see Fig. 2; *sustainable sounds*, Col. 7, Lines 2-4, see Fig. 2).

14. Regarding claims 20 and 30, Marley discloses detecting receipt of a voiced portion of a speech waveform, change the threshold level of the comparator through the threshold level circuit upon detecting receipt of a voiced portion and determine receipt of an unvoiced portion (*output signal will be a "logical one" or "logical zero" depending on amplitude of the incoming speech signal segment with respect to the previously received and characterized signal segment, level detect and magnitude control circuitry detects amplitude variations and adjusts the input signal to the comparator accordingly*, Col. 9, Lines 13-37; *distinguishing between a speech, silence or "hiss" period based on amplitude information of the present sound*, Col. 15, Lines 29-49).

15. Regarding claim 32, Marley discloses the one or more stored characteristics associated with a set of selectable words comprising one or more stored word profiles

(stored phoneme parameters to aid in matching of received speech signals, Col. 3, Lines 50-56).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marley (US Patent 4,181,813).

Regarding claims 5 and 14, Marley discloses the threshold level shifter circuit operative to change between three threshold levels based on a state of a single digital output having a high impedance state, a low digital state and a high digital state (*signal on the output conductor (part of feedback loop to comparator) will be a logical "one" or a logical "zero", Col. 9, Lines 13-17*). Marley does not explicitly disclose having a high impedance state.

However, the Examiner takes Official Notice that tristate logic is well known in the art and provides the high and low digital states, and a high impedance state.

Therefore it would have been obvious to one ordinarily skilled in the art at the time of the invention to modify the teachings of Marley with having three threshold levels based on a state of a single digital output having a low digital state and a high digital state as well as a high impedance state, since having three possible states allows for a more accurate characterization of the speech signal.

18. Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marley (US Patent 4,181,813), as applied to claim 2 above, in view of Gollinger *et al.* (US Patent 4,302,690).

Regarding claims 6 and 15, Marley does not disclose but Gollinger *et al.* suggest the threshold level shifter circuit operative to change between three threshold levels based on a state of two digital signals (*digital signal having three possible states obtained from an input signal which is converted into two digital signals*, Col. 1, Lines 58-63).

Therefore it would have been obvious to one ordinarily skilled in the art at the time of the invention to supplement the teachings of Marley with having the threshold level shifter circuit operative to change between three threshold levels based on a state of two digital signals, as suggested by Gollinger *et al.*, in order to more accurately describe the reference signal for further processing by the comparator circuit.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kanazawa *et al.* (US Patent 5,315,689) disclose a word and phoneme based speech recognition system.

Mercer (US Patent 5,563,952) discloses a system for voice detection that distinguishes between speech and silence periods by means of an amplitude threshold that is continually adjusted according to the current conditions.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minerva Rivero whose telephone number is (571) 272-7626. The examiner can normally be reached on Monday-Friday 9:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Ivars Smits can be reached on (571) 272-7628. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MR 6/7/05



W. R. YOUNG
PRIMARY EXAMINER